

Title (en)

Force detector using resistance elements.

Title (de)

Kraft-Messfühler mit Widerstandselementen.

Title (fr)

Détecteur de force utilisant des éléments de résistance.

Publication

EP 0381187 A2 19900808 (EN)

Application

EP 90101903 A 19900131

Priority

- JP 2312189 A 19890201
- JP 15503289 A 19890617

Abstract (en)

There is disclosed a force detector for detecting forces exerted in axial directions or moments exerted about respective axes using the origin (P) as a working point in an XYZ three-dimensional coordinate system. On the upper surface of the substrate (10), four bridge portions (11 to 14) are formed along the positive and negative directions of respective coordinate axes, and resistance elements (R1 to R24) having a property such that an electric resistance varies due to a mechanical deformation are arranged on predetermined symmetric positions of respective bridge portions. Bridge circuits are constructed by these resistance elements, and detection of a force is made by bridge voltage produced in the bridge circuit. A strain generative body (20) is used in order to transmit an external force to the substrate. This strain generative body is provided with a first flexible portion (23) having a sufficient flexibility with respect to the Z-axis direction and a second flexible portion (24) having a sufficient flexibility with respect to the direction perpendicular to the Z-axis, thus permitting detection sensitivities with respect to respective axes to be made uniform.

IPC 1-7

G01L 1/18; **G01L 1/20**; **G01L 5/16**

IPC 8 full level

G01L 1/18 (2006.01); **G01L 5/16** (2006.01)

CPC (source: EP US)

G01L 1/18 (2013.01 - EP US); **G01L 5/162** (2013.01 - EP US)

Cited by

CN106461484A; GB2343751A; CN113155344A; CN111226100A; US10197463B2; US8671780B2; US11841287B2; EP1688725A4

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